

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-6 are currently pending. Claims 1 and 2 have been amended by the present amendment. The amendments to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 1-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,370,768 to Itabashi (hereinafter, “Itabashi”) and U.S. Patent No. 5,972,192 to Dubin et al.(hereinafter, “Dubin”).

Applicants’ Claim 1 recites that the metal plating layers are grown on upper surfaces of said conductor film and said conductor portions with said conductor film and said conductor portions as electrodes after said conductor portions are formed in the respective plurality of opening holes by growing said metal plating layers so as to contact said metal plating layers with said conductor film located on an upper surface of the insulating member, without electroless plating being carried out.

Applicants submit that, in an exemplary aspect, the conductor film (32) is located on the upper surface of the insulating base member (22) while the conductor film (32) and the bottom of the opening are maintained in an electrically insulated condition.

Further, Applicants submit that such a configuration allows utilization of a stopper function where the growing speed of a metal plating layer becomes lower by contacting a part (or upper part) of the metal plating layer 42 with a conductor film 32. Furthermore, the conductor film 32 and a bottom of the opening hole (or the exposed area of the lower conductor layer 34) should be maintained in the electrically insulated condition, so as to obtain the proper stopper function at the desired timing.

When the metal plating layer 42 contacts the conductor film 32 at the desired timing, the growing speed thereof becomes remarkably lower or stops to make the respective grown level of the metal plating layer 42 in the opening hole equal to other levels (outside the opening hole). Consequently, it is preferred that electroless plating, which may result in electrical contact between the conductor film and the bottom of opening, not be used.

Finally, as mentioned in the Office Action, a conventional method for filling a via-hole by the conductive material includes 1) forming a conductive under or initial layer on the bottom of the via-hole by electroplating to improve the contact characteristic between the surface of the bottom of the via-hole and upper layer, and 2) filing via-hole by the electroless plating. In addition, Applicants note that the electroless plating condition is changed in accordance with the characteristic of thus formed conductive portion.

The Office Action rejects Claim 1 by asserting that Dubin describes that conventional electroless method is followed by electroplating process for filling a contact opening or so-called via-hole.¹

Applicants respectfully traverse the rejection of Claim 1 for the following reasons.

Dubin simply describes that a control of density of current applied onto a lower conductor layer to control the deposition ratio of a metal (42). However, there is **no** disclosure in Dubin of the metal layer (42) being grown on an upper surface of the conductor film, the conductor film (32) being located on the upper surface of the insulating base member (22) while the conductor film (32) and the bottom of the opening are maintained in an electrically insulated condition.

Therefore, based on the above discussion, Applicants respectfully submit that Dubin does **not** disclose or suggest that the metal layers are grown on upper surfaces of the

¹ See Office Action dated June 11, 2010, page 3.

conductor film and said conductor portions with the conductor film and the conductor portions as electrodes after the conductor portions are formed in the respective plurality of opening holes by growing the metal plating layers so as to contact the metal plating layers with the conductor film located on an upper surface of the insulating member, without electroless plating being carried out, as clarified in Claim 1.

No matter how the teachings of Itabashi and Dubin are combined, the combination does **not** disclose or suggest the above discussed features, as recited in Claim 1.

The above discussion regarding independent Claim 1 also applies to independent Claim 2, which recites analogous features in a claim of a different scope.

Accordingly, Applicants respectfully request that the 35 U.S.C. § 103(a) rejections of independent Claims 1 and 2 be withdrawn.

In addition, for the reasons discussed above regarding independent Claims 1 and 2, it is respectfully requested that the 35 U.S.C. § 103(a) rejections of dependent Claims 3-6, which directly or indirectly depend from independent Claims 1 or 2, also be withdrawn.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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